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| 09/846,200 | 05/02/2001 | Gregory Ciurpita | 2925-0492P | 4515 |
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| HARNESS, DICKEY & PIERCE, P.L.C. | | | WOZNIAK, JAMES S | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| Office Action Summary | Application No. 09/846,200 | Applicant(s) CIURPITA ET AL. |
| | Examiner JAMES S. WOZNIAK | Art Unit 2626 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

1) Responsive to communication(s) filed on 12 August 2008.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-10,12-25 and 27 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-10,12-25 and 27 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 02 May 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SE/CC)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Amendment

1. In response to the BPAI decision from 6/12/2008, the applicant has submitted a Request for Continued Examination, filed 8/12/2008, amending independent claims 1 and 13, while arguing to traverse the art rejection based on the limitation regarding receiving a user confirmation or rejection before a prompt is issued (*Amendment, Pages 8-9*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to the independent claims, the applicant argues that Ammicht et al (*U.S. Patent: 6,246,986*) fails to teach that a user rejection or confirmation of a recognition result is capable of being received before an audio output because Ammicht only teaches that user feedback is received either after or during the system output (*Amendment, Pages 8-9*).

In response, the examiner notes that the present claim only requires that the user rejection or confirmation is “*capable*” of being received before a recognition result is fed back, not that this receiving and further recognition step/function is actively performed. In the case of

Ammicht, the barge-in would be “capable” of being received because the recognizer of Ammicht continually “listens to all incoming signals” (Col. 2, Lines 55-63; Col. 4, Lines 26-52; and Col. 5, Lines 21-35). Thus, since Ammicht is always listening for the speech input of a user, Ammicht would be *capable* of receiving a user response at any time, which would include any prompt time frame (i.e., before, during, or after). In addition, Ammicht further notes that a barge-in is processed before a prompt is finished (*Col. 5, Lines 21-35*). This time window includes any part of the prompt, which would incorporate its commencement period or before the audio has begun playing. Thus, the examiner notes that because Ammicht teaches that the system continually listens for a user's speech, his system is *capable of receiving* a user response at any time. Also, the examiner also points out that it is worth noting that because a prompt period would include its commencement, the user of Ammicht's invention could interrupt a prompt before the audio output has even begun. Finally, being able to interrupt a prompt before it has begun is not unknown in the art. For example- see Wesemann et al (U.S. Patent: 6,349,132) which notes that a prompt can be interrupted "before it even begins" (*Col. 7, Lines 20-33*) or see Denenberg et al (*U.S. Patent: 6,724,864*) which teaches a timer used to determine when a barge-in occurred in a prompt period wherein a timer of 0 would indicate a barge-in before a prompt begins (*Col. 7, Lines 41-65*). These references have been included in the attached PTO-892 for the applicants' consideration. The further dependent claims have been traversed for reasons similar to the independent claims (Amendment, Pages 9-11). In regards to such arguments, see the response directed to the independent claims. Thus, for at least the above reasons, the applicants' arguments have been fully considered, but are not convincing.

Claim Objections

3. **Claims 13-25 and 27** are objected to because of the following informalities:

Claim 13 recites that the controller and the receiver are “configured to” perform certain functions. It is unclear whether these functions are required to be performed as they are not positively recited in the claim because they are merely “configured to” perform the indicated function. These functions will be assumed to be performed for the application of the prior art of record. The further dependent claims fail to overcome this objection, and thus, are also objected to by virtue of their dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 13-25 and 37** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 13 and it further dependent claims is drawn to a “program” *per se* because the scope of claim 13 includes a software embodiment because the specification notes the various components can be nothing more than software modules (“*components may be implemented through...stored program*”, *Paragraph 0060*) and, as such, these claims are directed to non-statutory subject matter. See also MPEP § 2106.IV.B.1.a. Data structures not claimed as

embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-5, 10-15, 18, 20-21, and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerson et al (*U.S. Patent: 4,870,686*) in view of Ammicht et al (*U.S. Patent: 6,246,986*).

With respect to **Claims 1 and 13**, Gerson discloses:

Receiving at least a current subgroup of speech units that form part of a complete speech sequence that is to be input from a user, the complete speech sequence being embodied as at least one of a word and a password comprised of a plurality of alphanumeric characters, the subgroup being one or more alphanumeric characters of the complete speech sequence (*partial digit sequence of a complete keyword, Col. 7, Lines 16-25 and abstract*);

Detecting a natural pause between input subgroups such that a pause between two alphanumeric characters in a given subgroup or a pause between one alphanumeric character and a subgroup are detected (*pause detection, Col. 7, Lines 16-68*);

Recognizing the speech units of the subgroup to provide a recognition result (*recognizing speech and displaying and synthesizing the result after a pause, Col. 7, Lines 38-56*); and
Immediately feeding back the recognition result for verification by the user (*display and synthesis of a recognition result after a detected pause, Col. 7, Lines 27-56*).

Although Gerson teaches a method and corresponding system for digit keyword recognition and pause detection for recognition feedback and subsequent correction or confirmation (*rejection of a recognized input or confirmation by inputting a subsequent sequence, Col. 7, Lines 15-68*), Gerson does not teach the use of a barge-in feature capable of being receiving before or during an audio output that allows a user to interrupt a recognition result before it is completely fed back to the user, however Ammicht teaches such a barge-in

feature (*Col. 3, Lines 35-45; and Col. 5, Lines 20-35*). Ammicht's barge-in would be "capable" of being received because the recognizer of Ammicht continually "listens to all incoming signals" (*Col. 2, Lines 55-63; Col. 4, Lines 26-52; and Col. 5, Lines 21-35*). Thus, since Ammicht is always listening for the speech input of a user, Ammicht would be *capable* of receiving a user response at any time, which would include any prompt time frame (i.e., before, during, or after). In addition, Ammicht further notes that a barge-in is processed before a prompt is finished (*Col. 5, Lines 21-35*). This time window includes any part of the prompt, which would incorporate its commencement period or before the audio has begun playing.

Gerson and Ammicht are analogous art because they are from a similar field of endeavor in speech recognition systems capable of recognizing spoken digits. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gerson with the "barge-in" feature taught by Ammicht in order to help facilitate user-machine interactions by allowing a user to interrupt a prompt with a meaningful speech input at any time (*Col. 2, Lines 19-29; Col. 3, Lines 35-45*).

With respect to **Claims 2 and 14**, Gerson further discloses:

Prompting the user to repeat the current subgroup if the user rejection is received during the receiving (*issuing an audio prompt indicating to the user that a sequence should be re-entered in response to an input rejection command, Col. 7, Lines 38-56*).

With respect to **Claims 3 and 20**, Gerson recites:

Repeating the steps of Claim 1 for remaining input subgroups until it is determined that the complete speech sequence has been recognized (*repeating the recognition of partial digit strings until the utterance of a terminate command, Col. 7, Lines 56-68*).

With respect to **Claims 4 and 21**, Gerson recites:

A speech recognition method and system, wherein the last step of Claim 1 is affected using pre-recorded prompts or via text-to-speech synthesis, (TTS) to feedback the recognition result (*synthesized recognition results, Col. 7, Lines 27-68*).

With respect to **Claims 5 and 18**, Gerson discloses:

The rejection criterion is embodied as a negative utterance spoken by the user after receiving the fed back recognition result (*“clear” command word that negates an undesired recognition result, Col. 7, Lines 27-56*).

With respect to **Claims 10 and 25**, Gerson discloses:

The speech units are selected from any of spoken digits and spoken letters (*spoken digits, Col. 7, Lines 16-25*).

With respect to **Claims 12 and 27**, Gerson recites:

The speech recognition unit determines a confidence level for the recognition result (*distance metric for determining a most likely template match, Col. 4, Lines 38-51*).

With respect to **Claim 15**, Gerson discloses:

A speech recognition system, wherein the speech recognition unit compares the input subgroup with stored recognition grammar in order to determine the recognition result (*speech recognizer having a digit template, Col. 4, Lines 38, and Col. 7, Lines 16-68*).

8. **Claims 6, 17, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerson et al in view of Ammicht et al, and further in view of Hou et al (*U.S. Patent: 5,325,421*).

With respect to **Claims 6, 17, and 19**, Gerson in view of Ammicht teaches the speech recognition system capable of detecting pauses between digit segments and prompting a user to repeat a subgroup if a digit is not recognized, as applied to Claim 2. Gerson in view of Ammicht does not teach the ability to include a negating speech input in a spoken digit string, however, Hou discloses such a means (*cancel command immediately following a digit sequence, Col. 10, Lines 42-58*).

Gerson, Ammicht, and Hou are analogous art because they are from a similar field of endeavor in speech-controlled interfaces. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gerson in view of Ammicht with the ability to include a negating speech input in a spoken digit string as taught by Hou in order to provide a means for a user to delete an incorrect speech input while entering a digit string (*Hou, Col. 10, Lines 47-51*), thus implementing a more efficient digit recognition processing by bypassing the partial digit string verification step as taught by Gerson and applied to Claim 1.

9. **Claims 7-8 and 22-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerson et al (*U.S. Patent: 4,870,686*) in view of Ammicht et al (*U.S. Patent: 6,246,986*) and further in view of Vanbuskirk (*U.S. Patent: 6,505,155*).

With respect to **Claims 7-8 and 22-23**, Gerson in view of Ammicht teaches the speech recognition method and system capable of recognizing digit segments through pause detection means to enable, upon input of a “clear” command, correction of input and recognition errors, as applied to Claims 2 and 14. Gerson in view of Ammicht does not specifically suggest prompting

a user to input shorter speech segments upon repeated recognition errors as a training mechanism, however Vanbuskirk teaches a method for providing prompts suggesting the use of shorter speech utterances (commands) in response to poor recognition accuracy, which effectively allows the user to learn the most accurate utterances by providing a list of the high recognition (shorter) speech segments (*Col. 8, Lines 40-54*).

Gerson Ammicht, and Vanbuskirk are analogous art because they are in a similar field of endeavor in speech-controlled interfaces. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine the teachings of Gerson in view of Ammicht with the method for providing prompts suggesting the use of shorter speech utterances as taught by Vanbuskirk in order to provide more accurate speech recognition and lowered likelihood of a recognition error (*Vanbuskirk, Col 8, Lines 40-54*).

10. **Claims 9 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerson et al in view of Ammicht et al, and further in view of Larsen (*"Investigating a Mixed-Initiative Dialogue Management Strategy,"* 1997).

With respect to **Claims 9 and 24**, Gerson in view of Ammicht teaches the speech recognition system capable of detecting pauses between digit segments and prompting a user to repeat a subgroup if a digit is not recognized, as applied to Claim 2. Gerson in view of Ammicht does not teach the ability to enter speech units using a dial pad upon repeated recognition errors, however Larsen discloses:

A speech recognition method and system, wherein if said rejection criteria are met repeatedly, the user is prompted to use a dial pad to enter the speech units (*ability to switch to DTMF input mode upon repeated recognition errors, Page 66-67, Application*).

Gerson, Ammicht, and Larsen are analogous art because they are from a similar field of endeavor in speech-controlled interfaces. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gerson in view of Ammicht with the ability to enter speech units in a DTMF input mode upon repeated recognition errors as taught by Larsen to offer an alternative means of inputting information in a speech interface if a user becomes frustrated with repeated recognition errors (*Larsen, Page 67*).

11. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerson et al in view of Ammicht et al, and further in view of Ladd et al (*U.S. Patent: 6,269,336*).

With respect to **Claim 16**, Gerson teaches the speech recognition system capable of detecting pauses between digit segments and featuring a digit grammar for recognition, as applied to Claim 15. Gerson does not suggest that the recognition grammar is stored in a remote memory accessible by the speech recognition unit, however Ladd teaches such a configuration (*grammar database at a server, Col. 8, Lines 55-61*).

Gerson, Ammicht, and Larsen are analogous art because they are from a similar field of endeavor in speech recognition. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gerson view of Ammicht with a recognition grammar stored at a remote server database as taught by Ladd in order to provide a

well-known means of achieving an expected result of conserving system memory in a device with limited storage.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/James S. Wozniak/
Patent Examiner, Art Unit 2626